The BNL Advanced Accelerator Group's third effort is:

- Theoretical studies of Neutrino Factory and Muon Colliders aimed at maximizing performance and minimizing cost. Work done this last year for the APS study showed how both neutrinos and antineutrinos could be generated from the same protons, and alternately sent to the detector. The effective performance was thus doubled. At the same time, the system was simplified and its cost reduced by about 40 %. These gains need engineering confirmation. The group is now involved in an International Scoping Study for a *World Design Study* (WDS) of Neutrino Factories, sponsored by RAL, that will further the work done by the MC Collaboration.

The BNL group, though small, is playing a leading role in the third item above, and represents over half the US effort. The addition of one staff member and one Post Doc would greatly expand these efforts and assure that the US remains, as it now is, the leader in such studies. Such an increment in personnel would partially correct the recent losses to US effort and stagnant budget of recent years. It was concern over such a trend that prompted the APS statements quoted above.

These studies will be needed for an extended period of time, until physics results can indicate the need for increased effort leading to a CDR, or until it is seen that the physics does not need such a facility.

The work will be done in collaboration with 6 US Labs, 17 US Universities, and 14 Foreign Institutions that form the Muon Collaboration. In addition, the work will be in partnership with the European Groups (CERN, RAL (UK), INFN, and Universities), Japan (KEK, Osaka, and Universities), and Russia (BINP).

This request is for:

- 3×300 k$ for one staff position
- 3×150 k$ for one Post Doc position